



SEQUENCE LISTING

<110> AMRAD Operations Pty Ltd

<120> A NOVEL MAMMALIAN GENE, bcl-2, BELONGS TO THE bcl-2
FAMILY OF APOPTOSIS-CONTROLLING GENES

<130> 2096584

<140> 09/155,327

<141> 1997-03-27

<150> PN8965

<151> 1996-03-27

<160> 15

<170> PatentIn Ver. 2.1

<210> 1

<211> 33

<212> DNA

<213> Mouse

<220>

<221> modified_base

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33

<210> 2

<211> 9

<212> PRT

<213> Mouse

<220>

<221> Unsure

<222> 5

<223> Xaa is Ile or Val

<400> 2

Asn Trp Gly Arg Xaa Val Ala Phe Phe
1 5

<210> 3
<211> 31
<212> DNA
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31

<210> 4
<211> 8
<212> PRT
<213> Mouse

<220>
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<223> Xaa is Asp or Glu

<220>
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<223> Xaa is Asn or Gln

<400> 4
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1 5

<210> 5
<211> 14
<212> PRT
<213> Mouse

<400> 5
Met Ala Thr Pro Ala Ser Thr Pro Asp Thr Arg Ala Leu Val
1 5 10

<210> 6

<211> 583
 <212> DNA
 <213> HUMAN

<220>
 <221> CDS
 <222> (1)..(579)

<400> 6
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 1 5 10 15

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 Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
 20 25 30

ccc ggg gag ggc cca gca gct gac ccg ctg cac caa gcc atg cgg gca 144
 Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
 35 40 45

gct gga gat gag ttc gag acc cgc ttc cgg cgc acc ttc tct gat ctg 192
 Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
 50 55 60

gcg gct cag ctg cat gtg acc cca ggc tca gcc cag caa cgc ttc acc 240
 Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
 65 70 75 80

cag gtc tcc gac gaa ctt ttt caa ggg ggc ccc aac tgg ggc cgc ctt 288
 Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
 85 90 95

gta gcc ttc ttt ctc ttt ggg gct gca ctg tgt gct gag agt gtc aac 336
 Val Ala Phe Phe Leu Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
 100 105 110

aag gag atg gaa cca ctg gtg gga caa gtg cag gag tgg atg gtg gcc 384
 Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala
 115 120 125

tac ctg gag acg cgg ctg gtc gac tgg atc cac agc agt ggg ggc tgg 432
 Tyr Leu Glu Thr Arg Leu Val Asp Trp Ile His Ser Ser Gly Gly Trp
 130 135 140

gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gcg cgg 480
 Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
 145 150 155 160

cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg ctg acg ggg 528
 Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
 165 170 175

gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc 576
 Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
 180 185 190

aag tgaa 583
 Lys

<210> 7

<211> 193
 <212> PRT
 <213> HUMAN

<400> 7

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Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
      20           25           30

Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
      35           40           45

Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
      50           55           60

Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
      65           70           75           80

Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
      85           90           95

Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
      100          105          110

Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala
      115          120          125

Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp
      130          135          140

Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
      145          150          155          160

Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
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Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
      180          185          190
  
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Lys

<210> 8
 <211> 581
 <212> DNA
 <213> Mouse

<220>
 <221> CDS
 <222> (1)..(579)

<400> 8

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Met Pro Thr Pro Ala Ser Thr Pro Asp Thr Arg Ala Leu Val Ala Asp
 1           5           10           15
  
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48

ttt gta ggc tat agg ctg agg cag aag ggt tat gtc tgt gga gct ggg	96
Phe Val Gly Tyr Arg Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly	
20 25 30	
cct ggg gaa ggc cca gcc gcc gac ccg ctg cac caa gcc atg cgg gct	144
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala	
35 40 45	
gct gga gac gag ttt gag acc cgt ttc cgc cgc acc ttc tct gac ctg	192
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu	
50 55 60	
gcc gct cag cta cac gtg acc cca ggc tca gcc cag caa cgc ttc acc	240
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr	
65 70 75 80	
cag gtt tcc gac gaa ctt ttc caa ggg ggc cct aac tgg ggc cgt ctt	288
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu	
85 90 95	
gtg gca ttc ttt gtc ttt ggg gct gcc ctg tgt gct gag agt gtc aac	336
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn	
100 105 110	
aaa gaa atg gag cct ttg gtg gga caa gtc cag gat tgg atc gtg gcc	384
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Ile Val Ala	
115 120 125	
tac ctg gag aca cgt ctg gct gac tgg atc cac agc agt ggc ggc tgg	432
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp	
130 135 140	
gcg gac ttc aca gct cta tac ggg gac ggg gcc ctg gag gac gca cgg	480
Ala Asp Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Asp Ala Arg	
145 150 155 160	
cgt ctg cgg gag ggc aac tgg gca tga gtg agc aca gtg gtg acg ggg	528
Arg Leu Arg Glu Gly Asn Trp Ala Val Ser Thr Val Val Thr Gly Ala	
165 170 175	
gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc	576
Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser Lys	
180 185 190	
aag tg	581

<210> 9
 <211> 193
 <212> PRT
 <213> Mouse

<400> 9
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 20 25 30
 Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala

35	40	45
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu		
50	55	60
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr		
65	70	75
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu		80
	85	90
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn		95
100	105	110
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Met Val Ala		
115	120	125
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp		
130	135	140
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg		
145	150	155
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly		160
	165	170
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser		175
180	185	190

Lys

<210> 10
 <211> 333
 <212> PRT
 <213> murine

<400> 10

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		15
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Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala		
35	40	45
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu		
50	55	60
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr		
65	70	75
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu		
85	90	95
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn		
100	105	110
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Met Val Ala		
115	120	125
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp		
130	135	140
Glu Leu Glu Ala Ile Lys Ala Arg Val Arg Glu Met Glu Glu Glu Ala		
145	150	155
		160
Glu Lys Leu Lys Glu Leu Gln Asn Glu Val Glu Lys Gln Met Asn Met		
165	170	175

Ser Pro Pro Pro Gly Asn Ala Gly Pro Val Ile Met Ser Leu Glu Glu
 180 185 190
 Lys Met Glu Ala Asp Ala Arg Ser Ile Tyr Val Gly Asn Val Asp Tyr
 195 200 205
 Gly Ala Thr Ala Glu Glu Leu Glu Ala His Phe His Gly Cys Gly Ser
 210 215 220
 Val Asn Arg Val Thr Ile Leu Cys Asp Lys Phe Ser Gly His Pro Lys
 225 230 235 240
 Gly Phe Ala Tyr Ile Glu Phe Ser Asp Lys Glu Ser Val Arg Thr Ser
 245 250 255
 Leu Ala Leu Asp Glu Ser Leu Phe Arg Gly Arg Gln Ile Lys Val Ile
 260 265 270
 Pro Lys Arg Thr Asn Arg Pro Gly Ile Ser Thr Thr Asp Arg Gly Phe
 275 280 285
 Pro Arg Ser Arg Tyr Arg Ala Arg Thr Thr Asn Tyr Asn Ser Ser Arg
 290 295 300
 Ser Arg Phe Tyr Ser Gly Phe Asn Ser Arg Pro Arg Gly Arg Ile Tyr
 305 310 315 320
 Arg Gly Arg Ala Arg Ala Thr Ser Trp Tyr Ser Pro Tyr
 325 330

<210> 11
 <211> 239
 <212> PRT
 <213> Homo sapiens

<400> 11
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 Lys Tyr Ile His Tyr Lys Leu Ser Gln Arg Gly Tyr Glu Trp Asp Ala
 20 25 30
 Gly Asp Val Gly Ala Ala Pro Pro Gly Ala Ala Pro Ala Pro Gly Ile
 35 40 45
 Phe Ser Ser Gln Pro Gly His Thr Pro His Thr Ala Ala Ser Arg Asp
 50 55 60
 Pro Val Ala Arg Thr Ser Pro Leu Gln Thr Pro Ala Ala Pro Gly Ala
 65 70 75 80
 Ala Ala Gly Pro Ala Leu Ser Pro Val Pro Pro Val Val His Leu Thr
 85 90 95
 Leu Arg Gln Ala Gly Asp Asp Phe Ser Arg Arg Tyr Arg Arg Asp Phe
 100 105 110

Ala Glu Met Ser Arg Gln Leu His Leu Thr Pro Phe Thr Ala Arg Gly
115 120 125

Arg Phe Ala Thr Val Val Glu Glu Leu Phe Arg Asp Gly Val Asn Trp
130 135 140

Gly Arg Ile Val Ala Phe Phe Glu Phe Gly Gly Val Met Cys Val Glu
145 150 155 160

Ser Val Asn Arg Glu Met Ser Pro Leu Val Asp Asn Ile Ala Leu Trp
165 170 175

Met Thr Glu Tyr Leu Asn Arg His Leu His Thr Trp Ile Gln Asp Asn
180 185 190

Gly Gly Trp Asp Ala Phe Val Glu Leu Tyr Gly Pro Ser Met Arg Pro
195 200 205

Leu Phe Asp Phe Ser Trp Leu Ser Leu Lys Thr Leu Leu Ser Leu Ala
210 215 220

Leu Val Gly Ala Cys Ile Thr Leu Gly Ala Tyr Leu Gly His Lys
225 230 235

<210> 12
<211> 233
<212> PRT
<213> Homo sapiens

<400> 12
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Leu Ser Gln Lys Gly Tyr Ser Trp Ser Gln Phe Ser Asp Val Glu Glu
20 25 30

Asn Arg Thr Glu Ala Pro Glu Gly Thr Glu Ser Glu Met Glu Thr Pro
35 40 45

Ser Ala Ile Asn Gly Asn Pro Ser Trp His Leu Ala Asp Ser Pro Ala
50 55 60

Val Asn Gly Ala Thr Gly His Ser Ser Ser Leu Asp Ala Arg Glu Val
65 70 75 80

Ile Pro Met Ala Ala Val Lys Gln Ala Leu Arg Glu Ala Gly Asp Glu
85 90 95

Phe Glu Leu Arg Tyr Arg Arg Ala Phe Ser Asp Leu Thr Ser Gln Leu
100 105 110

His Ile Thr Pro Gly Thr Ala Tyr Gln Ser Phe Glu Gln Val Val Asn
115 120 125

Glu Leu Phe Arg Asp Gly Val Asn Trp Gly Arg Ile Val Ala Phe Phe
130 135 140

Ser Phe Gly Gly Ala Leu Cys Val Glu Ser Val Asp Lys Glu Met Gln

145 150 155 160
 Val Leu Val Ser Arg Ile Ala Ala Trp Met Ala Thr Tyr Leu Asn Asp
 165 170 175
 His Leu Glu Pro Trp Ile Gln Glu Asn Gly Gly Trp Asp Thr Phe Val
 180 185 190
 Glu Leu Tyr Gly Asn Asn Ala Ala Ala Glu Ser Arg Lys Gly Gln Glu
 195 200 205
 Arg Phe Asn Arg Trp Phe Leu Thr Gly Met Thr Val Ala Gly Val Val
 210 215 220
 Leu Leu Gly Ser Leu Phe Ser Arg Lys
 225 230

<210> 13
 <211> 211
 <212> PRT
 <213> Homo sapiens

<400> 13
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 20 25 30
 Glu Val Phe Arg Ser Tyr Val Phe Tyr Arg His Gln Gln Glu Gln Glu
 35 40 45
 Ala Glu Gly Val Ala Ala Pro Ala Asp Pro Glu Met Val Thr Leu Pro
 50 55 60
 Leu Gln Pro Ser Ser Thr Met Gly Gln Val Gly Arg Gln Leu Ala Ile
 65 70 75 80
 Ile Gly Asp Asp Ile Asn Arg Arg Tyr Asp Ser Glu Phe Gln Thr Met
 85 90 95
 Leu Gln His Leu Gln Pro Thr Ala Glu Asn Ala Tyr Glu Tyr Phe Thr
 100 105 110
 Lys Ile Ala Thr Ser Leu Phe Glu Ser Gly Ile Asn Trp Gly Arg Val
 115 120 125
 Val Ala Leu Leu Gly Phe Gly Tyr Arg Leu Ala Leu His Val Tyr Gln
 130 135 140
 His Gly Leu Thr Gly Phe Leu Gly Gln Val Thr Arg Phe Val Val Asp
 145 150 155 160
 Phe Met Leu His His Cys Ile Ala Arg Trp Ile Ala Gln Arg Gly Gly
 165 170 175
 Trp Val Ala Ala Leu Asn Leu Gly Asn Gly Pro Ile Leu Asn Val Leu
 180 185 190

Val Val Leu Gly Val Val Leu Leu Gly Gln Phe Val Val Arg Arg Phe
 195 200 205

Phe Lys Ser
 210

<210> 14
 <211> 192
 <212> PRT
 <213> Homo sapiens

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 Asp Arg Ala Gly Arg Met Gly Gly Glu Ala Pro Glu Leu Ala Leu Asp
 35 40 45
 Pro Val Pro Gln Asp Ala Ser Thr Lys Lys Leu Ser Glu Cys Leu Lys
 50 55 60
 Arg Ile Gly Asp Glu Leu Asp Ser Asn Met Glu Leu Gln Arg Met Ile
 65 70 75 80
 Ala Ala Val Asp Thr Asp Ser Pro Arg Glu Val Phe Phe Arg Val Ala
 85 90 95
 Ala Asp Met Phe Ser Asp Gly Asn Phe Asn Trp Gly Arg Val Val Ala
 100 105 110
 Leu Phe Tyr Phe Ala Ser Lys Leu Val Leu Lys Ala Leu Cys Thr Lys
 115 120 125
 Val Pro Glu Leu Ile Arg Thr Ile Met Gly Trp Thr Leu Asp Phe Leu
 130 135 140
 Arg Glu Arg Leu Leu Gly Trp Ile Gln Asp Gln Gly Gly Trp Asp Gly
 145 150 155 160
 Leu Leu Ser Tyr Phe Gly Thr Pro Thr Trp Gln Thr Val Thr Ile Phe
 165 170 175
 Val Ala Gly Val Leu Thr Ala Ser Leu Thr Ile Trp Lys Lys Met Gly
 180 185 190

<210> 15
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<400> 15

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			20					25					30		
Glu	Lys	Lys	His	Ala	Glu	Asn	Phe	Glu	Thr	Phe	Cys	Glu	Gln	Leu	Leu
		35					40					45			
Ala	Val	Pro	Arg	Ile	Ser	Phe	Ser	Leu	Tyr	Gln	Asp	Val	Val	Arg	Thr
	50					55					60				
Val	Gly	Asn	Ala	Gln	Thr	Asp	Gln	Cys	Pro	Met	Ser	Tyr	Gly	Arg	Leu
	65				70					75					80
Ile	Gly	Leu	Ile	Ser	Phe	Gly	Gly	Phe	Val	Ala	Ala	Lys	Met	Met	Glu
				85					90					95	
Ser	Val	Glu	Leu	Gln	Gly	Gln	Val	Arg	Asn	Leu	Phe	Val	Tyr	Thr	Ser
		100						105					110		
Leu	Phe	Ile	Lys	Thr	Arg	Ile	Arg	Asn	Asn	Trp	Lys	Glu	His	Asn	Arg
		115					120					125			
Ser	Trp	Asp	Asp	Phe	Met	Thr	Leu	Gly							
	130					135									